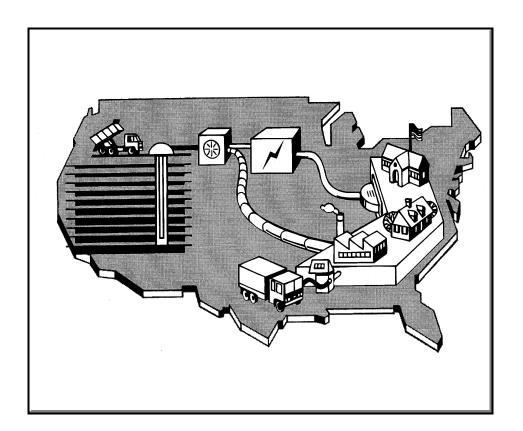


EPA Landfill Gas-to-Energy Project **Opportunities**

Landfill Profiles for the State of Oklahoma





EPA Landfill Methane Outreach Program



The EPA Landfill Methane Outreach Program, a key component of the United State's *Climate Change Action Plan*, encourages the use of landfill gas (LFG) as an energy resource. EPA assists utilities,

municipal and private landfill owners and operators, tribes, and state agencies in reducing methane emissions from landfills through the development of profitable landfill energy recovery projects. Methane captured from landfills can be transformed into a cost-effective fuel source for electricity, heat, boiler and vehicular fuel, or sale to a pipeline. EPA estimates there are approximately 200 landfill methane recovery projects in the U.S. and that up to 750 landfills could install economically viable landfill energy projects.

The Landfill Methane Outreach Program includes five important components: the State Ally, Energy Ally, Industry Ally, Community Partner, and Endorser programs. EPA establishes separate alliances with state agencies, energy providers (including investor-owned, municipal and other public power utilities and cooperatives), key trade and public sector associations, members of the landfill gas development industry (including developers, engineers, equipment vendors, and others) and local communities, municipalities and landfill owner/operators through a Memorandum of Understanding (MOU). By signing the MOU, each Ally/Partner acknowledges a shared commitment to the promotion of landfill gas-to-energy recovery at solid waste landfills, recognizes that the widespread use of landfill gas will reduce emissions of methane and other gases, and commits to undertake activities to enhance development of this resource. In return, EPA agrees to provide landfill gas-to-energy project assistance and public recognition of the Allies' and Partners' participation in the program.

Introduction

Since 1994 the U.S. EPA's Landfill Methane Outreach Program (LMOP) has participated in an ongoing effort to gather information on Municipal Solid Waste landfills (MSW). A key component of the LMOP is to provide MSW landfill owners and operators, project developers, utilities, and other potential project participants with information on MSW landfills that may offer attractive energy development opportunities. This document presents state specific landfill information, hereinafter referred to as the landfill profiles. These profiles are useful to evaluate the potential for developing landfill gas-toenergy projects (LFGTE). EPA assembled this information from state and local sources as well as various national solid waste publications, landfill owners and operators, and project developers.

The EPA has prepared a separate document to describe the methodology used to develop the state-specific landfill profiles and estimate the benefits of using LFGTE as an energy source. The document, Landfill Gas-to-Energy Project Opportunities, Background Information on Landfill Profiles, contains background information on gas collection and use, describes the data fields according to the five sections listed on the landfill profiles, and where applicable, illustrates calculations and default values used to derive estimates. EPA strongly recommends that users read the document prior to using the landfill profiles. Users can obtain the document by calling the LMOP hotline at 1-888-STAR-YES.

Data Sources

- EPA-ORD Landfill Gas Utilization-Survey (Thorneloe, 1997)
- Directory and Atlas of Solid Waste Disposal Facilities (SWA, 1994)
- Implementation Guide for Landfill Gas Recovery Projects in the Northeast (SCS, 1994)
- Landfill Gas-to-Energy 1994-1995 Activity Report (SWT, 1994)
- Methane Recovery from Landfill Yearbook (GAA, 1994)
- · Project developers, landfill owners, and operators
- · State and local records
- · Survey of Landfill Gas Generation Potential (EPRI, 1992)
- . U.S. Landfill Directory (SWANA, 1992)

Landfill Classification

To facilitate the use of available landfill information, EPA has categorized the landfills into five categories: Current Project, ¹ Candidate Project, Shutdown, Other, and Unknown waste-in-place (WIP). These categories are based on the status of the landfill's LFGTE project(s) and WIP. The generation of methane is a function of many factors, the most critical being the amount of waste-in-place and the number of years the waste has been in the landfill. Peak methane generation occurs soon after closure; therefore, the longer the landfill has been closed, the less attractive it becomes for methane recovery. Based on the general timing of peak methane generation, EPA assumes that landfills that ceased accepting waste prior to 1993 have a low probability of generating enough methane to make a gas recovery project economical. Consequently, landfills need to be operating in 1993 to be considered as having a Candidate Project.

Landfill Categorizes

Current Project:

 Landfill with operational LFGTE project or landfill with LFGTE project under construction.

Candidate Project:

- Landfill with a potential or planned LFGTE utilization project; or
- Landfill is currently operating or closed after 1993; and has more than 1,000,000 tons of municipal solid waste-inplace.²

Shutdown:

· Landfill with shutdown LFGTE project.

Other

 Landfill has less than 1,000,000 tons of municipal solid waste-in-place with no current or planned LFGTE project.

Unknown WIP:

 Landfill with insufficient data to determine the waste-inplace

State Summary

State-specific landfill profile information is summarized in three exhibits. Exhibit 1 presents a summary of the state-specific potential for LFG utilization energy by landfill category. Exhibit 2 summarizes the emissions avoided by fossil fuel displacement for electricity generation and direct use projects. Exhibit 3 presents an index of the state-specific MSW landfills, referenced by category, landfill name and general characteristics.

² By modeling the relationship between WIP and methane generation, a cut-off of 1,000,000 tons of WIP was established; landfills having at least 1,000,000 tons of WIP are considered candidate landfills.



¹ Current projects illustrate the wide range of successful project development options.

Exhibit 1: Oklahoma MSW Landfill Summary

Category	No. of Est. Capacity		-		Methane F		CO2 Equivalent of CH4	
	Landfills	Electricity (MW)	Gas Capacity (mmBtu/hr)	Generation (mmscf/d)	(tons/yr)		Reduction (tons/yr)	
					Potential	Current	Potential	Current
Current	1	5	48	2	8,952	0	187,998	0
Candidate	12	57	566	18	104,648	9,251	2,197,612	194,263
Other	5	7	67	2	12,429	0	261,007	0
Total	18	68	681	22	126,029	9,251	2,646,617	194,263

Exhibit 2: Potential Oklahoma Emissions Avoided by Fossil Fuel Displacement

Category		Electi	tricity Generation Project				Direct Use Project					
	CC)2 (tons/	yr)	SC)2 (tons/	yr)	CC)2 (tons/	yr)	so	2 (tons/	yr)
	Coal	Oil	Natural Gas	Coal	Oil	Natural Gas	Coal	Oil	Natural Gas	Coal	Oil	Natural Gas
Current	37,885	31,095	20,908	240	200	0	26,959	22,126	14,878	245	129	0
Candidate	447,519	367,304	246,980	2,829	2,364	0	315,134	258,648	173,918	2,868	1,507	2
Other	53,671	44,051	29,620	339	284	0	37,428	30,719	20,656	341	179	0
Total	539,076	442,449	297,509	3,407	2,848	0	379,521	311,493	209,452	3,453	1,815	2

Exhibit 3: Index of Landfills in Oklahoma

Category	Landfill Name		WIP		Landfill	LFG Collected	LFG	Status of LFGTE	
		<2.5 million 2.5 to 4 million tons		>4 million tons	Operating in 1998		Utilization Project	Project	
Current	New Castle LF			✓	✓		✓	Operational	
Candidate	51st Street LF			✓				Unknown	
Candidate	Broken Arrow LF			✓				Planned	
Candidate	Canadian County SWDA LF	✓			✓			Unknown	
Candidate	East Oak SLF/Mosley Road LF			✓	✓			Potential	
Candidate	Enid Municipal LF		✓		✓			Unknown	
Candidate	Lawton LF		✓		✓			Unknown	
Candidate	Muskogee Community LF		✓		✓			Unknown	
Candidate	NW Oklahoma SWDA LF	✓			✓			Unknown	
Candidate	Oklahoma LF			✓	✓			Planned	
Candidate	Pottawatomie County LF	✓			✓			Unknown	
Candidate	Quarry LF			✓	✓			Planned	
Candidate	Southern OK Regional Disposal LF	✓			✓			Unknown	
Other	51 B LF	✓			✓			Unknown	
Other	Absolute Waste Systems LF	✓			✓			Unknown	
Other	Cherokee Nation SLF	✓			✓			Unknown	
Other	Great Plains LF	✓			✓			Unknown	
Other	Longview Waste Systems LF	✓			✓			Unknown	

OK - 3 December 05, 1998

			51st Street L	C C		Landfill Car	tegory: Candidate
		A. G	ENERAL LANDFILL II		TION	Lanajiii Cai	egory. Candidate
Landfill Owner	BFI	11. 0		nnual Accer		(tons).	225 190
Landfill Owner:	BFI Private			•		(tons): Rate Reported:	325,189 1990
Landfill Owner Type: Alternative Landfill Na				ear Annuar esign Capac	•	Rate Reported:	1990
City:	ime:			esign Capac cres Current	- ·	nd (naras):	
County:	Wagon	or		verage Dept	-	ed (acres).	
State:	OK	CI		verage Dept aste-in-Plac			6,865,818
Year Open:	1983						6,865,818
Year Closed:	1983		17	990 wasie-ii	i-i iace (ion	.s.).	0,803,818
Teal Closed.	1994	1	B. LANDFILL GAS COI	LLECTION	J		
F 1 11/1 G			b. EANDFILE GAS COI				
Estimated Methane Ge		f/d):		2.17			
LFG Collection System							
Current LFG Collected				3.7			
Collection and Treatme	ent System Requ			No	N.T.		
			C. LANDFILL GAS UTI	ILIZATIO	N		
Current Utilization:							
Utilization Systen		Unknown					
Utilization Systen	• •	Unknown					
Utilization System Start Year:							
Electric Utility Provider(s):							
Natural Gas Provider(s):							
Energy Purchaser	(s):						
Capacity:		Electrici	ty Generation Project (MV	W)	OR	Direct Use Project (mr	nRtu/hr)
		Electrici	ty Generation Project (WIV			Direct Ose Floject (iiii	
Estimated Potenti				7			68
Current Capacity:							
Planned Capacity:				4.28			32
Utilities in County:		East Central	Okla El Coop Inc; Lake F	Region Elect	tric Coop In	c; Oklahoma Gas & Elec	tric Co; Southw
·		D. ENVII	RONMENTAL BENEFI	TS OF UTI	LIZATION	J	
Madama Dada di ang (sa			Pote	ential	10.570	Curr	
Methane Reduction (to	• .				12,570		0
CO2 Equivalent of CH	4 Reauction (to	ns/yr):			263,964		0
Emissions Avoided by	Fossil Fuel Dist	olacement:	Electricity Gener	ration Proje	ct	Direct Use	Project
•	•		CO2 (tons/yr)	SO2 (to		CO2 (tons/yr)	SO2 (tons/yr)
		Coal:	53,671		339	37,852	344
		Fuel Oil:	44,051		284	31,067	181
	IV	atural Gas:	29,620		0	20,890	0
			E. CONTACT INFOR	MATION			
-		Landfill	Owner			Landfill Operator	
Contact Name:	Donald Fletche	er		Richa	ard Grotte		
Mailing Address:	1225 North 16	1 East Avenue		4343	Will Roger	s Parkwav	
	-220 1.01tm 10			13 13			
Phone Number:				105 (040 1062		
				403-9	949-1962		
Fax Number:							

^{*} Itallicized indicates values estimated by EPA. December 5, 1998 State: OK Page:



			Broken Arrow	, LF		Landfill Category	· Candidate
		A. G	ENERAL LANDFILL I		ION	Lanagui Caicgory	. Canadate
Landfill Owner:	BFI		Δ	annual Accep	tance Rate	(tons):	253,022
Landfill Owner Type:				•		Rate Reported:	1995
Alternative Landfill N		Design Capacity (tons):					1773
City:	Tulsa	Acres Currently Landfilled (acres):					
County:	Wagon	er	•				
State:	OK		Waste-in-Place (tons): 3,736,131				
Year Open:	1976		1998 Waste-in-Place (tons): 4,091,953				
Year Closed:	1998		_		- 11100 (1111	~).	1,000
]	B. LANDFILL GAS CO	LLECTION			
Estimated Methane G	eneration (mmsc	f/d):		1.46			
LFG Collection System Status:							
Current LFG Collecte							
Collection and Treatn		uired Under NSI	PS/EG:	No			
			C. LANDFILL GAS UT	TILIZATION	1		
Current Utilization:							
Utilization Syste	m Status:	Planned					
Utilization Syste	m Type:	Medium Btu	1				
Utilization Syste	m Start Year:	1998					
Electric Utility Provider(s):							
Natural Gas Prov	Natural Gas Provider(s):						
Energy Purchase	r(s):						
G							
Capacity:		Electric	ty Generation Project (M	w) (OR T	Direct Use Project (mmBtu/	hr)
Estimated Potent				5			46
Current Capacity							
Planned Capacity	y:						
Utilities in County:		East Central	Okla El Coop Inc; Lake	Region Elect	ric Coop In	c; Oklahoma Gas & Electric C	o; Southw
		D. ENVII	RONMENTAL BENEFI	ITS OF UTI	LIZATION	1	
			Pot	ential		Current	
Methane Reduction (t	ons/yr):				8,468		0
CO2 Equivalent of CI	H4 Reduction (to	ns/yr):			177,824		0
E	E '1E 1D'		El			D' II D'	
Emissions Avoided by	Fossil Fuel Disp	olacement:	Electricity Gene	=		Direct Use Proje	
			CO2 (tons/yr)	SO2 (to	ns/yr)	CO2 (tons/yr) S	O2 (tons/yr)
		Coal:	36,307		230	25,500	232
		Fuel Oil:	29,799		192	20,929	122
	N	atural Gas:	20,037		0	14,073	0
			E. CONTACT INFOR	RMATION		·	
		Landfill	Owner			Landfill Operator	
Contact Name:	Dennis Bolling	ger, Energy Man	ager	Kip S	mith		
Mailing Address:	757 N. Eldridg	ge		1225	North 161 I	East Avenue	
	P.O. Box 3151						
Phone Number:	281-870-7801			918-6	64-8899		
Fax Number:							
I an I willow.							

* Itallicized indicates values estimated by EPA. Decer



Canadian County SWDA LF Landfill Category: Candidate A. GENERAL LANDFILL INFORMATION Landfill Owner: Canadian County Annual Acceptance Rate (tons): 44,330 Landfill Owner Type: Public Year Annual Acceptance Rate Reported: 1998 Alternative Landfill Name: Design Capacity (tons): City: El Reno Acres Currently Landfilled (acres): County: Canadian Average Depth (feet): State: OK Waste-in-Place (tons): 2,141,804 Year Open: 1974 2,328,050 1998 Waste-in-Place (tons): Year Closed: 2006 **B. LANDFILL GAS COLLECTION** 1.01 Estimated Methane Generation (mmscf/d): LFG Collection System Status: Current LFG Collected (mmscf/d): Collection and Treatment System Required Under NSPS/EG: No C. LANDFILL GAS UTILIZATION Current Utilization: **Utilization System Status:** Unknown Utilization System Type: Unknown Utilization System Start Year: Electric Utility Provider(s): Natural Gas Provider(s): Energy Purchaser(s): Capacity: Electricity Generation Project (MW) OR Direct Use Project (mmBtu/hr) Estimated Potential Capacity: 3 32 Current Capacity: Planned Capacity: 1.29 10 Caddo Electric Coop Inc; Cimarron Electric Cooperative; Oklahoma Electric Coop Inc; Oklahoma Ga Utilities in County:

D. ENVIRONMENTAL BENEFITS OF UTILIZATION								
	Pote	ntial	Curre	ent				
Methane Reduction (tons/yr):		5,859		0				
CO2 Equivalent of CH4 Reduction (tons/yr):		123,045	0					
Emissions Avoided by Fossil Fuel Displacement:	Electricity Generation Project		Direct Use	Project				
	CO2 (tons/yr)	SO2 (tons/yr)	CO2 (tons/yr)	SO2 (tons/yr)				
Coal:	25,257	160	17,645	161				
Fuel Oil:	20,730	133	14,482	84				
Natural Gas:	13,939	0	9,738	0				
	E. CONTACT INFOR	MATION						

	Landfill Owner	Landfill Operator
Contact Name:	David Griesel	David Griesel
Mailing Address:	PO Drawer 189	PO Drawer 189
Phone Number: Fax Number:	405-263-4418	405-483-5402

^{*} Itallicized indicates values estimated by EPA. December 5, 1998 State: OK Page: 3



		East Oak SLF/Mosley Road LF		Landfill Category:	Candidate
	A. G	SENERAL LANDFILL INFORMA	ATION		
Landfill Owner:	WMI	Annual Acc	Annual Acceptance Rate (tons):		
Landfill Owner Type:	Private	Year Annua	ıl Acceptance !	Rate Reported:	1998
Alternative Landfill Name:	Mosley Road LF	Design Cap	acity (tons):		
City:	Oklahoma City	Acres Curre	ently Landfilled	d (acres):	70
County:	Oklahoma	Average De	pth (feet):		100
State:	OK	Waste-in-Pl	ace (tons):		6,589,455
Year Open:	1986	1998 Waste	-in-Place (tons	s):	7,787,537
Year Closed:	2003				
		B. LANDFILL GAS COLLECTION)N		
Estimated Methane Generati	on (mmscf/d):	2.41			
LFG Collection System Statu	18:				
Current LFG Collected (mms	scf/d):	2.4			
Collection and Treatment Sy	stem Required Under NS	PS/EG: Yes			
		C. LANDFILL GAS UTILIZATION	ON		
Current Utilization:					
Utilization System Statu	ıs: Potential				
Utilization System Type					
Utilization System Start					
Electric Utility Provider		G&E Co.			
Natural Gas Provider(s)	:				
Energy Purchaser(s):	Williamson	Natural Gas Pipeline, Cruchs El			
Capacity:	Electric	ity Generation Project (MW)	OR	Direct Use Project (mmBtu/h	r)
Estimated Potential Cap	pacity:	8			75
Current Capacity:					
Planned Capacity:		4.91			38
Utilities in County:	Canadian V	alley Elec Coop Inc; Central Rural F	Electric Coop;	Cimarron Electric Cooperative;	Edmon
	D. ENVI	RONMENTAL BENEFITS OF U	FILIZATION		
		Potential		Current	
 Methane Reduction (tons/yr).	:	2 0.0711141	13,933		9,251
CO2 Equivalent of CH4 Redi			292,589		194,263
2 2 2quironom of CII i Retti					
E	E 15: 1			l	

D. ENVIRONMENTAL BENEFITS OF UTILIZATION								
	Pote	ential	Current					
Methane Reduction (tons/yr):		13,933		9,251				
CO2 Equivalent of CH4 Reduction (tons/yr):		292,589	194,263					
Emissions Avoided by Fossil Fuel Displacement:	Electricity Gener	ration Project	Direct Use Project					
	CO2 (tons/yr)	SO2 (tons/yr)	CO2 (tons/yr)	SO2 (tons/yr)				
Coal:	59,196	374	41,957	382				
Fuel Oil:	48,585	313	34,436	201				
Natural Gas:	32,669	0	23,155	0				
	E. CONTACT INFORMATION							

Landfill Owner	Landfill Operator

Contact Name:	Jim Meinholz	Jim Meinholz
Mailing Address:	3201 Mosley Road Route 4, Box 310	3201 Mosley Road Route 4, Box 310
Phone Number:	405-427-1112	405-427-1112
Fax Number:		

^{*} Itallicized indicates values estimated by EPA. December 5, 1998 State: OK Page: 4



STAR Version 1.0 / LMOP

			Enid Municipal LF		Landfill Cates	gory: Candidate	
		A. G.	ENERAL LANDFILL INFO	DRMATION			
Landfill Owner:	City of	Enid	Annual Acceptance Rate (tons):				
Landfill Owner Type:	Public		Year Annual Acceptance Rate Reported:				
Alternative Landfill N	ame: City of	Enid LF	Desig	n Capacity (tons):			
City:	Enid		Acres	Currently Landfilled	(acres):	106	
County:	Garfiel	d	Avera	age Depth (feet):			
State:	OK		Waste	e-in-Place (tons):		2,392,871	
Year Open:	1987		1998	Waste-in-Place (tons)) <i>:</i>	2,871,446	
Year Closed:	2017						
		J	B. LANDFILL GAS COLLE	ECTION			
Estimated Methane Generation (mmscf/d):				1.15			
LFG Collection System		,					
Current LFG Collected							
Collection and Treatm		uired Under NSF	S/FG·	No			
Concetion and Treatm	ent System Req		C. LANDFILL GAS UTILIZ				
C TIVII .							
Current Utilization:							
Utilization Syster		Unknown					
Utilization Syster	• •	Unknown					
Utilization Syster							
Electric Utility Pr							
Natural Gas Prov	` '						
Energy Purchaser	r(s):						
Capacity:		Electrici	ty Generation Project (MW)	OR	Direct Use Project (mmI	Btu/hr)	
Estimated Potenti	ial Canacity:		<u> </u>	4	J \	36	
Current Capacity:				"		30	
Planned Capacity			1.76			13	
Franned Capacity	•		1.	.70		15	
Utilities in County:		Alfalfa Elect	ric Coop Inc; Central Rural E	Electric Coop; Cimarro	on Electric Cooperative; I	Kay Electric C	
		D. ENVII	RONMENTAL BENEFITS	OF UTILIZATION			
			Potentia	al	Currer	nt	
Methane Reduction (to	ons/yr):			6,663		0	
CO2 Equivalent of CH	14 Reduction (to	ns/yr):		139,921		0	
Emissions Avoided by	Fossil Fuel Disp	olacement:	Electricity Generation	-	Direct Use P	roject	
			CO2 (tons/yr)	SO2 (tons/yr)	CO2 (tons/yr)	SO2 (tons/yr)	
		Coal:	28,414	180	20,064	183	
		Fuel Oil:	23,321	150	16,468	96	
	λ	atural Gas:	15,681	0	11,073	0	
		——————————————————————————————————————			11,075		
		Landfill	E. CONTACT INFORMA	ATION	Landfill Operator		
Contact Name:	י מווים	- Dunuilli V	·	D 277.1.	Zunomi Operator		
Contact Name:	Bill Beck			Bruce Wright			
Mailing Address:	P.O. Box 1768			1313 Southgate Ro	oad		
Phone Number:	580-249-4917			405-249-4917			
E Nl							



Fax Number:

			Lawton LF		Landfill C	ategory: Candidate	
		A. GEN	NERAL LANDFILL I	NFORMATION			
Landfill Owner:	vner: City of Lawton Ai			annual Acceptance F	ual Acceptance Rate (tons): 120		
Landfill Owner Type:	Public		Y	ear Annual Accepta	ance Rate Reported:	1998	
Alternative Landfill Na	me: City of	Lawton LF	D	esign Capacity (ton	Capacity (tons):		
City:	Lawton	1	Α	cres Currently Land	dfilled (acres):	120	
County:	Coman	che	A	verage Depth (feet)):	80	
State:	OK		V	Vaste-in-Place (tons):	2,950,368	
Year Open:	1984		1.	998 Waste-in-Place	(tons):	3,404,265	
Year Closed:	2012						
		В.	LANDFILL GAS CO	LLECTION			
Estimated Methane Ger	neration (mmsc	f/d):		1.29			
LFG Collection System							
Current LFG Collected							
Collection and Treatme	nt System Requ	uired Under NSPS	EG:	No			
			LANDFILL GAS UT	ILIZATION			
Current Utilization:							
Utilization System	Status:	Unknown					
Utilization System		Unknown					
Utilization System	• 1	Chkhowh					
Electric Utility Pro		Cotton Electric	•				
Natural Gas Provid		Cotton Liceure	,				
Energy Purchaser(
Energy Turchaser(5).						
Capacity:		Electricity	Generation Project (M	W) OR	Direct Use Project (n	nmBtu/hr)	
Estimated Potentia	ıl Capacity:			4		40	
Current Capacity:							
Planned Capacity:							
Trainieu cupueny.	Planned Capacity:			2.42		19	
Utilities in County: Caddo Electr				2.42		19	
		Caddo Electric	Coop Inc; Cotton Elec		ic Service Co of Oklahoma;		
			Coop Inc; Cotton Elec	etric Coop Inc; Publ			
			NMENTAL BENEFI	etric Coop Inc; Publ	TION		
Methane Reduction (tor	ıs/yr):		NMENTAL BENEFI	etric Coop Inc; Publi	Cu	Rural Electric Co	
·	- ·	D. ENVIRO	NMENTAL BENEFI	etric Coop Inc; PublicTS OF UTILIZAT	Cu	Rural Electric Co	
Methane Reduction (tor CO2 Equivalent of CH-	Reduction (to	D. ENVIRO	Pot	ential 7,45	Cur 1 7	Rural Electric Co rrent 0 0	
Methane Reduction (tor	Reduction (to	D. ENVIRO	Pot Electricity Gene	ential 7,45 156,46 rration Project	Cui 11 77 Direct Us	Rural Electric Co rrent 0 0 e Project	
Methane Reduction (tor CO2 Equivalent of CH-	Reduction (to	D. ENVIRO	Pot	ential 7,45	Cur 1 7	Rural Electric Co rrent 0 0	
Methane Reduction (tor CO2 Equivalent of CH-	Reduction (to	D. ENVIRO	Pot Electricity Gene	ential 7,45 156,46 rration Project	Cui 11 77 Direct Us	Rural Electric Co rrent 0 0 e Project	
Methane Reduction (tor	Reduction (to	ns/yr):	Pot Electricity Gene CO2 (tons/yr) 31,571	ential 7,45 156,46 reation Project SO2 (tons/yr)	Cur	Rural Electric Co rrent 0 0 e Project SO2 (tons/yr) 204	
Methane Reduction (tor CO2 Equivalent of CH-	! Reduction (to	ns/yr): placement: Coal: Fuel Oil:	Pot Electricity Gene CO2 (tons/yr) 31,571 25,912	ential 7,45 156,46 reation Project SO2 (tons/yr) 200 167	Cure Direct Us. CO2 (tons/yr) 22,437 18,415	rrent 0 0 e Project SO2 (tons/yr) 204 107	
Methane Reduction (tor CO2 Equivalent of CH-	! Reduction (to	ns/yr): clacement: Coal: Fuel Oil: Vatural Gas:	Electricity Gene CO2 (tons/yr) 31,571 25,912 17,424	ential 7,45 156,46 ration Project SO2 (tons/yr) 200 167	Cur	Rural Electric Co rrent 0 0 e Project SO2 (tons/yr) 204	
Methane Reduction (tor CO2 Equivalent of CH-	! Reduction (to	ns/yr): placement: Coal: Fuel Oil: latural Gas:	Electricity Gene CO2 (tons/yr) 31,571 25,912 17,424 E. CONTACT INFOR	ential 7,45 156,46 ration Project SO2 (tons/yr) 200 167	Cure Direct Us. CO2 (tons/yr) 22,437 18,415 12,383	rrent 0 0 e Project SO2 (tons/yr) 204 107	
Methane Reduction (ton CO2 Equivalent of CH2 Emissions Avoided by H	! Reduction (to	ns/yr): clacement: Coal: Fuel Oil: Vatural Gas:	Electricity Gene CO2 (tons/yr) 31,571 25,912 17,424 E. CONTACT INFOR	ential 7,45 156,46 ration Project SO2 (tons/yr) 200 167	Cure Direct Us. CO2 (tons/yr) 22,437 18,415	rrent 0 0 e Project SO2 (tons/yr) 204 107	
Methane Reduction (tor CO2 Equivalent of CH2 Emissions Avoided by F	! Reduction (to	ns/yr): placement: Coal: Fuel Oil: latural Gas:	Electricity Gene CO2 (tons/yr) 31,571 25,912 17,424 E. CONTACT INFOR	ential 7,45 156,46 ration Project SO2 (tons/yr) 200 167	Cure Direct Us. CO2 (tons/yr) 22,437 18,415 12,383	rrent 0 0 e Project SO2 (tons/yr) 204 107	
Methane Reduction (tor CO2 Equivalent of CH2 Emissions Avoided by H	Reduction (tod Tossil Fuel Disp N Bruce Lukus	ns/yr): clacement: Coal: Fuel Oil: Vatural Gas: Landfill Ox	Electricity Gene CO2 (tons/yr) 31,571 25,912 17,424 E. CONTACT INFOR	ential 7,45 156,46 ration Project SO2 (tons/yr) 200 167 0 RMATION Dave Truitt	Cur	rrent 0 0 e Project SO2 (tons/yr) 204 107	
Methane Reduction (tor CO2 Equivalent of CH2 Emissions Avoided by H	Preduction (to	ns/yr): clacement: Coal: Fuel Oil: Vatural Gas: Landfill Ox	Electricity Gene CO2 (tons/yr) 31,571 25,912 17,424 E. CONTACT INFOR	ential 7,45 156,46 ration Project SO2 (tons/yr) 200 167 0 RMATION	Cur	rrent 0 0 e Project SO2 (tons/yr) 204 107	
Methane Reduction (tor CO2 Equivalent of CH2 Emissions Avoided by F Contact Name: Mailing Address:	Reduction (tod Tossil Fuel Disp N Bruce Lukus	ns/yr): clacement: Coal: Fuel Oil: Vatural Gas: Landfill Ox	Electricity Gene CO2 (tons/yr) 31,571 25,912 17,424 E. CONTACT INFOR	ential 7,45 156,46 ration Project SO2 (tons/yr) 200 167 0 RMATION Dave Truitt	Cur	rrent 0 0 e Project SO2 (tons/yr) 204 107	

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Fax Number:

Muskogee Community LF Landfill Category: Candidate A. GENERAL LANDFILL INFORMATION Landfill Owner: Waste Management, Inc. Annual Acceptance Rate (tons): 226,974 Landfill Owner Type: 1995 Private Year Annual Acceptance Rate Reported: Alternative Landfill Name: Design Capacity (tons): City: Acres Currently Landfilled (acres): County: Muskogee Average Depth (feet): State: OK Waste-in-Place (tons): 2,093,541 Year Open: 1987 2,512,252 1998 Waste-in-Place (tons): Year Closed: 2002 **B. LANDFILL GAS COLLECTION** 1.06 Estimated Methane Generation (mmscf/d): LFG Collection System Status: Current LFG Collected (mmscf/d): Collection and Treatment System Required Under NSPS/EG: No C. LANDFILL GAS UTILIZATION

Current Utilization:

Utilization System Status: Unknown
Utilization System Type: Unknown

Utilization System Start Year: Electric Utility Provider(s): Natural Gas Provider(s): Energy Purchaser(s):

Capacity: Electricity Generation Project (MW) OR Direct Use Project (mmBtu/hr)

Estimated Potential Capacity: 3 33

Current Capacity: 2.15 16

Utilities in County: Cookson Hills Elec Coop Inc; East Central Okla El Coop Inc; Lake Region Electric Coop Inc; Oklaho

D. ENVIRONMENTAL BENEFITS OF UTILIZATION						
	Pote	ential	Current			
Methane Reduction (tons/yr):		6,132		0		
CO2 Equivalent of CH4 Reduction (tons/yr):			0			
Emissions Avoided by Fossil Fuel Displacement:	Electricity Generation Project		Direct Use Project			
	CO2 (tons/yr)	SO2 (tons/yr)	CO2 (tons/yr)	SO2 (tons/yr)		
Coal:	26,046	165	18,465	168		
Fuel Oil:	21,378	138	15,155	88		
Natural Gas:	14,375	0	10,191	0		
	E. CONTACT INFOR	MATION				

Landfill Owner		Landfill Operator	
Contact Name:	Mark Daniels	Raymond DeBose, Site Manager	
Mailing Address:	2801 South 54th Street West	2801 South 54th Street West	

Phone Number: 918-682-7284 918-682-7284
Fax Number: 918-682-2867 918-682-2867

^{*} Itallicized indicates values estimated by EPA. December 5, 1998 State: OK Page: 7



NW Oklahoma SWDA LF Landfill Category: Candidate A. GENERAL LANDFILL INFORMATION Landfill Owner: Northwest Oklahoma Solid Waste Authority Annual Acceptance Rate (tons): 39,305 Landfill Owner Type: Public Year Annual Acceptance Rate Reported: 1989 Alternative Landfill Name: Design Capacity (tons): City: Acres Currently Landfilled (acres): County: Woodward Average Depth (feet): State: OK Waste-in-Place (tons): 982,633 Year Open: 1972 1998 Waste-in-Place (tons): 1,061,235 Year Closed: 2004 **B. LANDFILL GAS COLLECTION** Estimated Methane Generation (mmscf/d): 0.69 LFG Collection System Status: Current LFG Collected (mmscf/d): Collection and Treatment System Required Under NSPS/EG: No C. LANDFILL GAS UTILIZATION Current Utilization: **Utilization System Status:** Unknown Utilization System Type: Unknown Utilization System Start Year: Electric Utility Provider(s): Natural Gas Provider(s): Energy Purchaser(s): Capacity: Electricity Generation Project (MW) OR Direct Use Project (mmBtu/hr) 2 Estimated Potential Capacity: 22 Current Capacity: Planned Capacity: Fort Supply Electric Dept; Mooreland Light & Power Dept; Northwestern Electric Coop Inc; Oklahom Utilities in County: D. ENVIRONMENTAL BENEFITS OF UTILIZATION Potential Current Methane Reduction (tons/yr): 3,986 0 CO2 Equivalent of CH4 Reduction (tons/yr): 83,706 0 Emissions Avoided by Fossil Fuel Displacement: Electricity Generation Project Direct Use Project CO2 (tons/yr) SO2 (tons/yr) CO2 (tons/yr) SO2 (tons/yr) Coal: 17,364 110 12,003 109 Fuel Oil: 14,252 92 9,852 57 Natural Gas: 0 6,624 0 9.583 E. CONTACT INFORMATION

	Landfill Owner	Landfill Operator
Contact Name:	Ralph Triplett	Ralph Triplett
Mailing Address:	P.O. Box 427	P.O. Box 427
Phone Number: Fax Number:	405-256-8097	405-256-8097

* Itallicized indicates values estimated by EPA.

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New Castle LF Land A. GENERAL LANDFILL INFORMATION						Landfill Category	: Current
A. GENERAL LANDFILL INFORMATION							
Landfill Owner:		Annual Acceptance Rate (tons):					360,118
Landfill Owner Type:	Private				Year Annual Acceptance Rate Reported: 199		
Alternative Landfill N		,			Capacity (tons):		
City:	Newcas				Currently Landfille	ed (acres):	
County:	McClai	n			e Depth (feet):		
State:	OK				n-Place (tons):		3,739,670
Year Open:	1986			1998 W	aste-in-Place (ton	is):	4,419,607
Year Closed:	2004		B. LANDFILL GAS (COLLEC	STRICKI		
			3. LANDFILL GAS (
Estimated Methane Ge		f/d):		1.	55		
LFG Collection Syster							
Current LFG Collected							
Collection and Treatm	ent System Requ				No		
			C. LANDFILL GAS	UTILIZ	ATION		
Current Utilization:							
Utilization Syster		Operational					
Utilization Syster		Direct Therr	nal				
Utilization Syster							
Electric Utility Pr							
Natural Gas Prov							
Energy Purchaser	r(s):						
Capacity: Electricity Generation Project (MW) OR Direct Use Project (mmBtu/hr)							
Estimated Potenti	ial Capacity:				5		48
Current Capacity:				4.	0		31
Planned Capacity	:						
Utilities in County:		Oklahoma E	lectric Coop Inc; Okla	ıhoma Ga	s & Electric Co; F	Peoples Electric Coop Inc; Purc	ell Public
		D. ENVIR	RONMENTAL BENE	EFITS O	F UTILIZATION	V	
			1	Potential		Current	
 Methane Reduction (to	ons/vr):		_		8,952		0
CO2 Equivalent of CH	- ·	ns/yr):			187,998		0
-							
Emissions Avoided by	Fossil Fuel Disp	olacement:	Electricity Generation Project		Direct Use Project		
			CO2 (tons/yr)	S	O2 (tons/yr)	CO2 (tons/yr) S	O2 (tons/yr)
		Coal:	37,885	i	240	26,959	245
		Fuel Oil:	31,095	i	200	22,126	129
	N	atural Gas:	20,908	}	0	14,878	0
			E. CONTACT INF	ORMAT	TION	<u> </u>	
		Landfill	Owner			Landfill Operator	
Contact Name:	Dean Matts			Marty Poage			
Mailing Address:	7540 SW 59th				1741 North Port	land Road	
Phone Number:	405-387-5677				405-387-5677		
Fax Number:							



Oklahoma LF Landfill Category: Candidate A. GENERAL LANDFILL INFORMATION Landfill Owner: Allied Waste (old LWS) Annual Acceptance Rate (tons): 676,284 Landfill Owner Type: Private Year Annual Acceptance Rate Reported: 1995 Alternative Landfill Name: Design Capacity (tons): City: Oklahoma City Acres Currently Landfilled (acres): County: Oklahoma Average Depth (feet): State: OK Waste-in-Place (tons): 10,401,150 Year Open: 1981 11,701,296 1998 Waste-in-Place (tons): Year Closed: 2022 **B. LANDFILL GAS COLLECTION** Estimated Methane Generation (mmscf/d): 3.41 LFG Collection System Status: Current LFG Collected (mmscf/d): Collection and Treatment System Required Under NSPS/EG: No C. LANDFILL GAS UTILIZATION Current Utilization: **Utilization System Status:** Planned Direct Thermal Utilization System Type: Utilization System Start Year: 1998 Electric Utility Provider(s): Natural Gas Provider(s): Energy Purchaser(s): Condea/Vista, GM, and/or Campbell Asphal Capacity: Electricity Generation Project (MW) OR Direct Use Project (mmBtu/hr) Estimated Potential Capacity: 11 107 Current Capacity: Planned Capacity: Canadian Valley Elec Coop Inc; Central Rural Electric Coop; Cimarron Electric Cooperative; Edmon Utilities in County: D. ENVIRONMENTAL BENEFITS OF UTILIZATION Potential Current Methane Reduction (tons/yr): 19,720 0 CO2 Equivalent of CH4 Reduction (tons/yr): 414.128 0 Emissions Avoided by Fossil Fuel Displacement: Electricity Generation Project Direct Use Project CO2 (tons/yr) SO2 (tons/yr) CO2 (tons/yr) SO2 (tons/yr) Coal: 84,453 534 59,385 540 Fuel Oil: 69,315 446 48,741 284 Natural Gas: 0 0 46,608 32,774 E. CONTACT INFORMATION Landfill Owner Landfill Operator Contact Name: Danny Muck, Landfill Manager Danny Muck Mailing Address: 7600 SW 15th Street 7600 SW 15th Street Phone Number: 405-745-4141 405-745-4141

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Fax Number:

Pottawatomie County LF Landfill Category: Candidate A. GENERAL LANDFILL INFORMATION Landfill Owner: BFI Annual Acceptance Rate (tons): 118,136 Landfill Owner Type: Private Year Annual Acceptance Rate Reported: 1995 Alternative Landfill Name: Canadian Valley LF Design Capacity (tons): City: Shawnee Acres Currently Landfilled (acres): County: Pottawatomie Average Depth (feet):

B. LANDFILL GAS COLLECTION

Waste-in-Place (tons):

1998 Waste-in-Place (tons):

1,526,225

1,761,030

Estimated Methane Generation (mmscf/d): 0.87

LFG Collection System Status: Current LFG Collected (mmscf/d):

Collection and Treatment System Required Under NSPS/EG: No

C. LANDFILL GAS UTILIZATION

Current Utilization:

State:

Year Open:

Year Closed:

Utilization System Status: Unknown
Utilization System Type: Unknown

OK

1984

2009

Utilization System Start Year: Electric Utility Provider(s): Natural Gas Provider(s): Energy Purchaser(s):

Capacity: Electricity Generation Project (MW) OR Direct Use Project (mmBtu/hr)

Estimated Potential Capacity: 3 27

Current Capacity: 1.69 13

Utilities in County: Canadian Valley Elec Coop Inc; Oklahoma Electric Coop Inc; Oklahoma Gas & Electric Co; Southwe

D. ENVIRONMENTAL BENEFITS OF UTILIZATION						
	Potential		Current			
Methane Reduction (tons/yr):		5,021		0		
CO2 Equivalent of CH4 Reduction (tons/yr):			0			
Emissions Avoided by Fossil Fuel Displacement:	Electricity Generation Project		Direct Use Project			
	CO2 (tons/yr)	SO2 (tons/yr)	CO2 (tons/yr)	SO2 (tons/yr)		
Coal:	21,311	135	15,120	138		
Fuel Oil:	17,491	113	12,409	72		
Natural Gas:	11,761	0	8,344	0		
	E CONTACT INFOR	MATION				

	Landfill Owner	Landfill Operator
Contact Name:	Dennis Johnson	Dennis Johnston
Mailing Address:	P.O. Box 30596	P.O. Box 30596
Phone Number:	406-834-2244	406-834-2244
Fax Number:	405-275-5369	

^{*} Itallicized indicates values estimated by EPA. December 5, 1998 State: OK Page: 11



			Quarry LI	7		Landfill Cat	egory: Candidate
	A. GENERAL LANDFILL INF					Lanajiii Cai	egory. Candidate
Landfill Owner:						(tons):	590,010
Landfill Owner Type:		wianagement, inc		-	*		
Alternative Landfill N				Design Capac	-	Rate Reported.	1994
City:	Tulsa			Acres Current	-	nd (acres):	
County:	Tulsa			Average Dept	-	ed (acres).	
State:	OK			Waste-in-Plac			4,354,126
Year Open:	1989			1998 Waste-ir	` ′	· ·	5,442,657
Year Closed:	1707		1	100 Wasie-ii	i-i iace (ion		3,442,037
Tear Closed.		В	. LANDFILL GAS CO	LLECTION	N		
Estimated Methane G	anaration (mmsc			1.81	·		
LFG Collection System		<i>j/α)</i> .		Planned			
Current LFG Collecte				Taimed			
Collection and Treatm		uired Under NSP	S/FG·	No			
	ioni Bystem requ		C. LANDFILL GAS UT		N		
Current Utilization:							
Utilization System	m Status:	Planned					
Utilization System		Unknown					
Utilization System		1999					
Electric Utility P		1,,,,					
Natural Gas Prov							
Energy Purchase	` '						
Energy 1 aremage	. (3).						
Capacity:		Electricit	y Generation Project (M	IW)	OR	Direct Use Project (mn	nBtu/hr)
Estimated Potent	ial Capacity:			6			57
Current Capacity	:						
Planned Capacity							
Utilities in County:		Collinsville I	Electric Dept: East Centr	al Okla El Co	oop Inc: Ind	lian Electric Coop Inc; Ok	dahoma Gas &
			ONMENTAL BENEF		•	•	
		D. EIVIII			LIZATIO		
Madama Dalaadaa (4			Pol	Potential		Curre	
Methane Reduction (to	• '	/)			10,465		0
CO2 Equivalent of CF	14 Reauction (to	ns/yr):			219,769		0
Emissions Avoided by	Fossil Fuel Disp	olacement:	Electricity Generation Project		Direct Use	Project	
-			CO2 (tons/yr)	SO2 (to	ons/yr)	CO2 (tons/yr)	SO2 (tons/yr)
		Coal:	44,989		284	31,515	287
		Fuel Oil:	36,925		238	25,866	151
	N	atural Gas:	24,829		0	17,392	0
			E. CONTACT INFO	RMATION			
		Landfill (Landfill Operator	
Contact Name:				Aime	Aimee Toole		
Mailing Address	4041 North 141st East Avenue				4041 North 141st East Avenue		
Mailing Address:	4041 NORIII 14	181 East Avenue		4041	1101ul 141S	t Last Avenue	
Phone Number:	918-437-7773			918_/	437-7773		
Fax Number:	710 431-1113			710-5	.51 1113		



Southern OK Regional Disposal LF Landfill Category: Candidate A. GENERAL LANDFILL INFORMATION Landfill Owner: Southern Oklahoma Regional Disposal, Inc. Annual Acceptance Rate (tons): 100,100 Landfill Owner Type: Private Year Annual Acceptance Rate Reported: 1998 Alternative Landfill Name: Ardmore SLF Design Capacity (tons): City: Acres Currently Landfilled (acres): County: Carter Average Depth (feet): State: OK Waste-in-Place (tons): 1,195,397 Year Open: 1979 1998 Waste-in-Place (tons): 1,328,220 Year Closed: 2002 **B. LANDFILL GAS COLLECTION** Estimated Methane Generation (mmscf/d): 0.76 LFG Collection System Status: Current LFG Collected (mmscf/d): Collection and Treatment System Required Under NSPS/EG: No C. LANDFILL GAS UTILIZATION Current Utilization: **Utilization System Status:** Unknown Utilization System Type: Unknown Utilization System Start Year: Electric Utility Provider(s):

Natural Gas Provider(s): Energy Purchaser(s):

Capacity: Electricity Generation Project (MW) OR Direct Use Project (mmBtu/hr) Estimated Potential Capacity: 2 24 Current Capacity: Planned Capacity: 1.02 8

Cotton Electric Coop Inc; Oklahoma Gas & Electric Co; Peoples Electric Coop Inc; Red River Valley Utilities in County:

D. ENVIRONMENTAL BENEFITS OF UTILIZATION						
	Potential		Curre	ent		
Methane Reduction (tons/yr):		4,381		0		
CO2 Equivalent of CH4 Reduction (tons/yr):		0				
Emissions Avoided by Fossil Fuel Displacement:	Electricity Generation Project		Direct Use Project			
	CO2 (tons/yr)	SO2 (tons/yr)	CO2 (tons/yr)	SO2 (tons/yr)		
Coal:	18,943	120	13,192	120		
Fuel Oil:	15,547	100	10,828	63		
Natural Gas:	10,454	0	7,281	0		
F CONTACT INFORMATION						

Landfill Owner		Landfill Operator	
Contact Name:	Troy Duke	Troy Duke	
Mailing Address:	P.O. Box 1088	P.O. Box 1088	
	2405 Cedar Road	2405 Cedar Road	
Phone Number:	405-226-1276	405-226-1276	
Fax Number:			

^{*} Itallicized indicates values estimated by EPA. December 5, 1998 State: OK 13 Page:

